

January 31, 2014

CONFIDENTIAL

Ms. Mary Vanek
Executive Director
Public Employees Ret. Assoc. of MN
60 Empire Drive, Suite 200
St. Paul, MN 55103

Re: Projection of Contributions and Funding Status – General Employees Retirement Plan

Dear Mary:

Attached are 30-year projections of estimated funded status, required contributions, and statutory contributions under three asset return scenarios for the General Employees Retirement Plan (PERA General). Unless noted otherwise, the estimates are based on participant data, assumptions, methods, and plan provisions as of July 1, 2013 as detailed in the General Employees Retirement Plan Actuarial Valuation Report as of July 1, 2013.

As required by the State of Minnesota Standards for Actuarial Work, the projections reflect three asset return scenarios. The statutory investment return assumption is a 4-year select and ultimate approach with rates of 8.0% for the period July 1, 2013 to June 30, 2017 and 8.5% thereafter. The scenarios assume future investment returns of 1.5% more than the assumed rate, the assumed rate, and 1.5% less than the assumed rate. Note that we believe the 10.0% rate of return assumption is outside of the range of reasonable expected rates of return for this plan.

The estimates are based on the market value of assets with no smoothing of investment gains or losses. The projection is an open group projection; meaning, active members projected to retire or otherwise terminate in the future are replaced with new active members so that the total active membership of the PERA General remains at 139,763 members. The profile of these new members is the same as new members of PERA General hired between July 1, 2010 and July 1, 2012:

- Average age at hire is 37 years
- Average salary at hire is \$24,300
- Approximately 69% female, 31% male

If actuarial accrued liability exceeds assets, the unfunded actuarial accrued liability is amortized through June 30, 2031 per Minnesota Statute 356.215, Subdivision 11. As directed by PERA, the statutory amortization date is assumed to be changed to June 30, 2061 once the current period expires in 2031. Per Minnesota Statute 356.215, Subdivision 11 (l), a negative unfunded actuarial accrued liability (i.e., when assets exceed liability) is amortized over a rolling 30-year period.

As directed by PERA, we have shown projection results with and without the contribution stabilizer defined in Minnesota Statute 353.27, Subdivision 3b, summarized in the attached Exhibit A. Projections that include the contribution stabilizer also include the following proposed contribution increases: member contribution rate proposed to increase from 6.25% to 6.50%, and employer contribution rate proposed to increase from 7.25% to 7.50%, both effective January 1, 2015.

Based on the operations of the stabilizer, the projected highest annual statutory contribution rate is:

Assumed Investment Return	Maximum Statutory Contribution (percent of pay)
6.5%/7.0%	28.50%
8.0%/8.5%	14.50%
9.5%/10.0%	14.00%

Some of these rates are significantly higher than the current rate of 13.50% of pay.

Please see Exhibit A for details on the contribution stabilizer.

Postretirement Benefit Increases

A very significant assumption affecting the projected estimates is the expectation of annual increases in the benefits being paid to retirees and beneficiaries. If the plan reaches a funding ratio of 90% (on a market value of assets basis) for two consecutive years in the future, postretirement increases will revert to the 2.5% level.

Under the 7.0% rate of return scenario without a contribution stabilizer, the funded status of the plan is expected to deteriorate. We assumed a 1.0% postretirement benefit increase for all years for this scenario. If the postretirement benefit increase was assumed to be 2.5% instead of 1.0%, the liabilities would be significantly greater than the liabilities shown in this report.

Under all other rate of return scenarios, assuming all future postretirement benefit increases equal 1.0%, the funded status of the plan is expected to exceed 90% for two consecutive years in the year shown in the first column of the table on the following page. However, if at that time future postretirement increases are assumed to be 2.5%, the funded ratio would be less than 90%. If the plan continued to pay postretirement increases of 1.0% per year, our projections indicate that the plan would reach a funding status of 90% for two consecutive years (assuming future postretirement increases of 2.5%) around the year shown in the second column of the table on the following page. Without further guidance, we cannot determine the date the postretirement increase would change to 2.5% and have not shown values for this scenario beyond the years shown in the second column of the table on the following page. Different results would be obtained if our projected liabilities for years prior to reaching 90% for two consecutive years anticipated a switch to the 2.5% COLA.

Assumed Investment Return	Estimated Date Expected to Reach 90% Funding Ratio for Two Consecutive Years	
	Assuming 1.0% COLA	Assuming 2.5% COLA
6.5% investment return for four years, 7.0% thereafter; without stabilizer	N/A	N/A
6.5% investment return for four years, 7.0% thereafter; with stabilizer	2031	2034
8.0% investment return for four years, 8.5% thereafter; without stabilizer	2028	2035
8.0% investment return for four years, 8.5% thereafter; with stabilizer	2026	2032
9.5% investment return for four years, 10.0% thereafter; without stabilizer	2020	2024
9.5% investment return for four years, 10.0% thereafter; with stabilizer	2020	2024

Comments

To the best of our knowledge and belief, the calculations were completed in accordance with the requirements of Minnesota Statutes, Section 356.215, and the requirements of the Standards for Actuarial Work established by the Legislative Commission on Pensions and Retirement.

This report should not be relied upon for any purpose other than the purpose described herein. Determinations of the financial results associated with the benefits described in this report in a manner other than the intended purpose may produce significantly different results. GRS is not responsible for the consequences of any unauthorized use.

The valuation was based upon information furnished by the Public Employees Retirement Association of Minnesota (PERA), concerning benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries.

Actuarial assumptions, including discount rates, mortality tables and others identified in this report, are prescribed by Minnesota Statutes Section 356.215 the Legislative Commission on Pensions and Retirement (LCPR), and the Trustees. These parties are responsible for selecting the plan’s funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods and assumptions used in this valuation are those that have been so prescribed and are described in the Actuarial Basis of the valuation report. PERA is solely responsible for communicating to GRS any changes required thereto.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan’s funded status); and changes in plan provisions or applicable law.

Professional Qualifications

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

Brian B. Murphy and Bonita J. Wurst are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. In addition, Mr. Murphy meets the requirements of “approved actuary” under Minnesota Statutes Section 356.215, Subdivision 1, Paragraph (c).

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge and belief the information contained in this report is accurate and fairly presents the actuarial position of the General Employees Retirement Plan as of the valuation date and was performed in accordance with the requirements of Minnesota Statutes Section 356.215, and the requirements of the Standards for Actuarial Work established by the LCPR. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board and with applicable statutes.

Sincerely,



Bonita J. Wurst, ASA, EA, MAAA



Brian B. Murphy, FSA, EA, MAAA, FCA

BJW/BBM:ah
Enclosures

Exhibit A

General Employees Retirement Plan Contribution Stabilizer

The following is a summary of Minnesota Statute 353.27, Subd 3b:

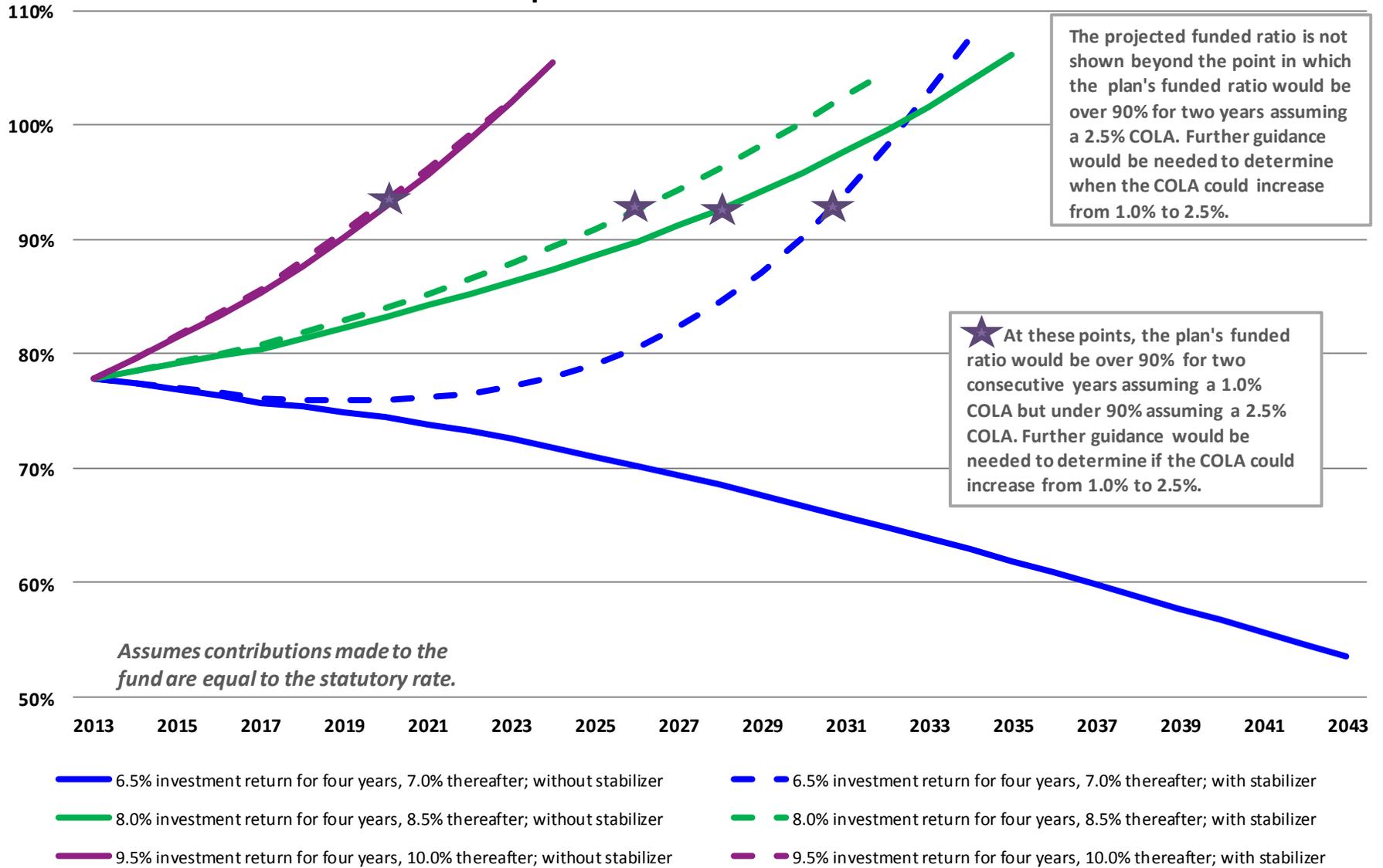
- If a contribution sufficiency of at least 1.0% has existed for two consecutive years, the member and employer contribution rates are decreased 0.25% as long as the contribution rate has been in place for two consecutive years.
- If a contribution deficiency of at least 0.5% has existed for two consecutive years, the member and employer contribution rates may each be increased by the amounts shown in the table below.

Contribution Deficiency (based on Actuarial Value of Assets)	Allowable Increase in Member and Employer Contribution Rates
<2% of pay	0.25% of pay
2% to 4% of pay	0.50% of pay
>4% of pay	0.75% of pay

- Contribution stabilizer adjustments become effective on July 1st.
- Projections that include the contribution stabilizer also include the following proposed contribution increases: member contribution rate proposed to increase from 6.25% to 6.50%, and employer contribution rate proposed to increase from 7.25% to 7.50%, both effective January 1, 2015.

This exhibit should only be viewed in conjunction with GRS' January 31, 2014 letter to PERA.

General Employees Retirement Plan Estimated Funding Ratio Assumes postretirement increases of 1.0%



The projected funded ratio is not shown beyond the point in which the plan's funded ratio would be over 90% for two years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.

★ At these points, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. Further guidance would be needed to determine if the COLA could increase from 1.0% to 2.5%.

Assumes contributions made to the fund are equal to the statutory rate.

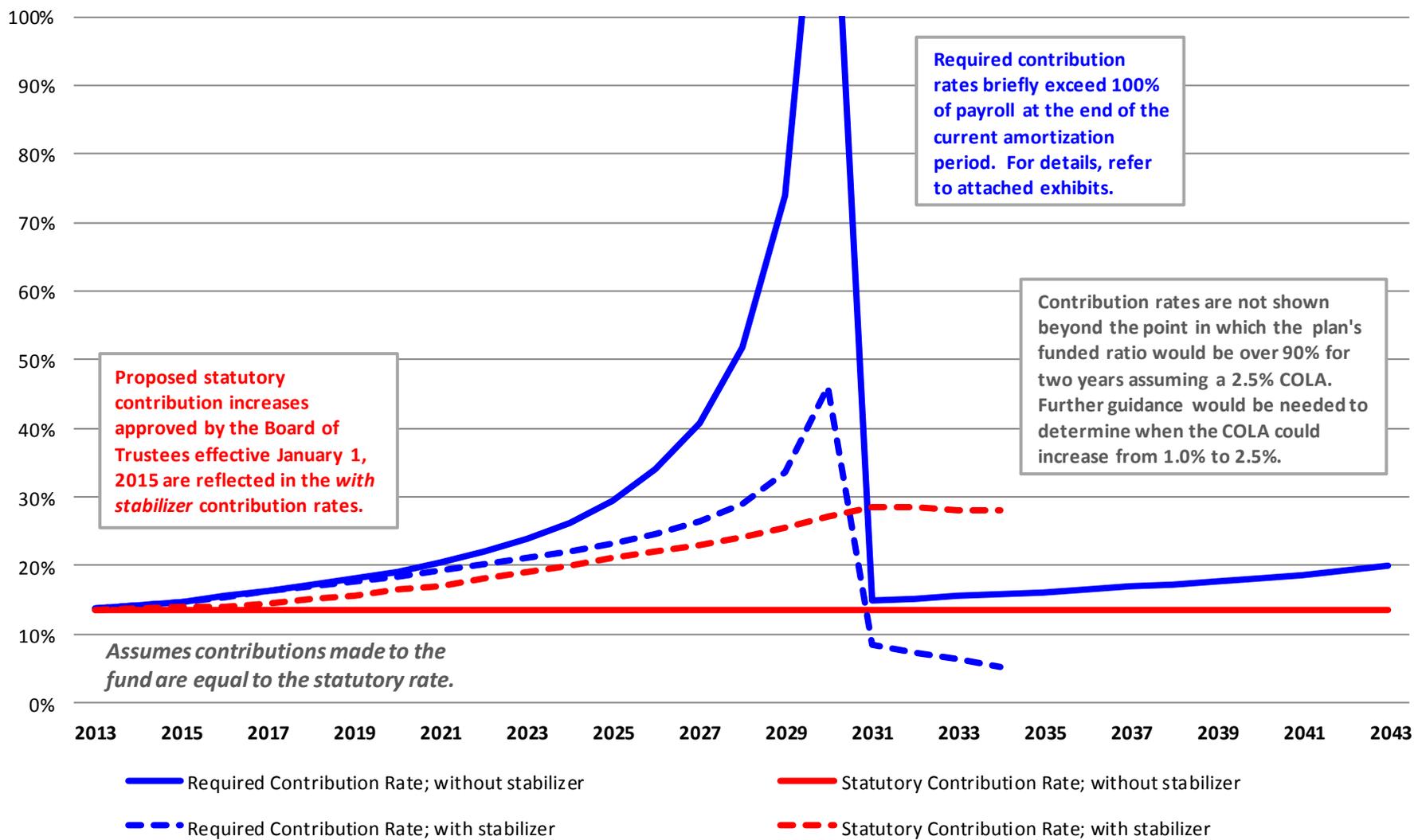
General Employees Retirement Plan

Estimated Contribution Rates

Investment return of 6.5% for four years; 7.0% thereafter

Assumes postretirement increases of 1.0%

This exhibit should only be viewed in conjunction with GRS' January 31, 2014 letter to PERA.

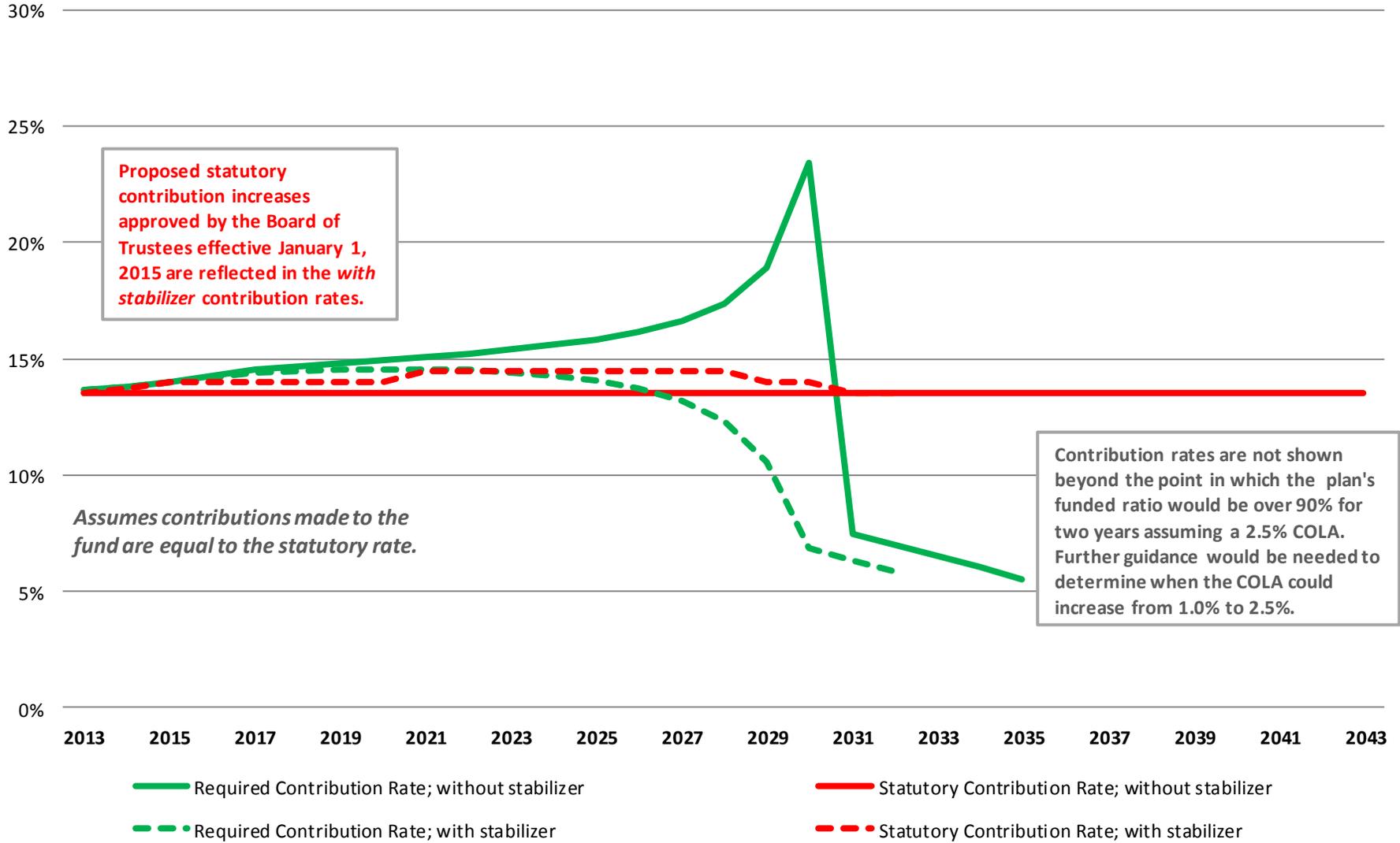


This exhibit should only be viewed in conjunction with GRS' January 31, 2014 letter to PERA.

General Employees Retirement Plan Estimated Contribution Rates

Investment return of 8.0% for four years; 8.5% thereafter

Assumes postretirement increases of 1.0%



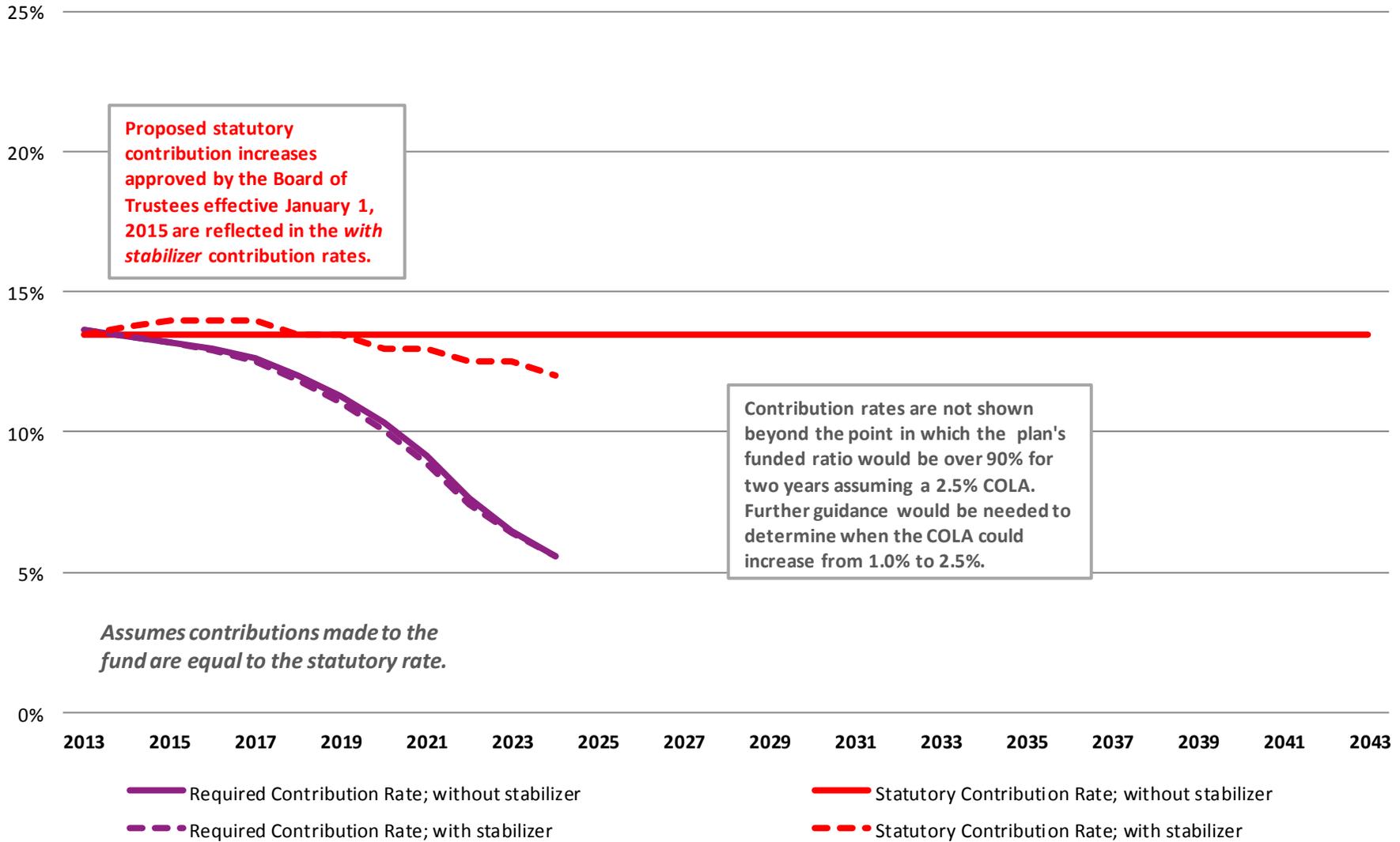
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General Employees Retirement Plan

Estimated Contribution Rates

Investment return 9.5% for four years, 10.0% thereafter

Assumes postretirement increases of 1.0%



This exhibit should only be viewed in conjunction with GRS' January 31, 2014 letter to PERA.

General Employees Retirement Plan
Scenario: 6.5% for Four Years, 7.0% thereafter WITHOUT CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Contributions (% of Payroll)										
Statutory - Chapter 353	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%
Required - Chapter 356	13.7%	14.1%	14.7%	15.5%	16.3%	17.1%	18.1%	19.1%	20.4%	22.0%
Sufficiency / (Deficiency)	(0.2)%	(0.6)%	(1.2)%	(2.0)%	(2.8)%	(3.6)%	(4.6)%	(5.6)%	(6.9)%	(8.5)%
Contributions										
Statutory - Chapter 353	709,707	730,466	744,629	757,884	772,235	788,131	805,180	823,854	844,675	867,216
Required - Chapter 356	717,569	764,732	813,282	868,848	934,818	1,000,062	1,076,559	1,167,402	1,276,708	1,409,817
Sufficiency / (Deficiency)	(7,862)	(34,266)	(68,653)	(110,964)	(162,583)	(211,931)	(271,379)	(343,548)	(432,033)	(542,601)
Funding Ratios										
Current Assets (MVA)	15,084,608	15,622,075	16,140,494	16,619,892	17,057,026	17,535,260	17,977,259	18,382,195	18,752,654	19,091,841
Actuarial Accrued Liability (AAL)	19,379,769	20,181,530	20,977,267	21,756,549	22,518,471	23,263,504	23,990,542	24,699,658	25,393,954	26,076,446
Unfunded AAL	4,295,161	4,559,455	4,836,773	5,136,657	5,461,445	5,728,244	6,013,283	6,317,463	6,641,300	6,984,605
Funding Ratio	78%	77%	77%	76%	76%	75%	75%	74%	74%	73%
Benefit Payments	1,128,767	1,201,557	1,285,949	1,370,132	1,452,919	1,535,946	1,618,458	1,697,567	1,773,365	1,845,870

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

This exhibit should only be viewed in conjunction with GRS' January 31, 2014 letter to PERA.

General Employees Retirement Plan
Scenario: 6.5% for Four Years, 7.0% thereafter WITHOUT CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Contributions (% of Payroll)										
Statutory - Chapter 353	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%
Required - Chapter 356	23.9%	26.3%	29.5%	34.0%	40.6%	51.7%	73.8%	140.1%	15.0%	15.2%
Sufficiency / (Deficiency)	(10.4)%	(12.8)%	(16.0)%	(20.5)%	(27.1)%	(38.2)%	(60.3)%	(126.6)%	(1.5)%	(1.7)%
Contributions										
Statutory - Chapter 353	891,388	917,388	945,095	974,492	1,005,525	1,038,058	1,072,178	1,107,820	1,144,920	1,183,436
Required - Chapter 356	1,575,153	1,786,115	2,064,838	2,451,463	3,026,242	3,976,418	5,863,893	11,498,385	1,267,509	1,333,684
Sufficiency / (Deficiency)	(683,765)	(868,727)	(1,119,743)	(1,476,971)	(2,020,717)	(2,938,360)	(4,791,715)	(10,390,565)	(122,589)	(150,248)
Funding Ratios										
Current Assets (MVA)	19,402,731	19,686,393	19,946,045	20,184,685	20,405,937	20,610,547	20,801,748	20,982,149	21,154,291	21,320,151
Actuarial Accrued Liability (AAL)	26,749,999	27,415,711	28,076,820	28,737,174	29,401,350	30,070,983	30,750,091	31,442,628	32,152,519	32,882,746
Unfunded AAL	7,347,268	7,729,318	8,130,775	8,552,489	8,995,413	9,460,436	9,948,343	10,460,479	10,998,228	11,562,595
Funding Ratio	73%	72%	71%	70%	69%	69%	68%	67%	66%	65%
Benefit Payments	1,917,034	1,985,052	2,050,231	2,112,154	2,173,793	2,232,663	2,289,669	2,344,990	2,399,280	2,453,483

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

This exhibit should only be viewed in conjunction with GRS' January 31, 2014 letter to PERA.

General Employees Retirement Plan
Scenario: 6.5% for Four Years, 7.0% thereafter WITHOUT CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Contributions (% of Payroll)										
Statutory - Chapter 353	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%
Required - Chapter 356	15.5%	15.8%	16.1%	16.5%	16.8%	17.2%	17.7%	18.2%	18.7%	19.3%
Sufficiency / (Deficiency)	(2.0)%	(2.3)%	(2.6)%	(3.0)%	(3.3)%	(3.7)%	(4.2)%	(4.7)%	(5.2)%	(5.8)%
Contributions										
Statutory - Chapter 353	1,223,474	1,265,151	1,308,584	1,353,792	1,400,835	1,449,792	1,500,669	1,553,604	1,608,649	1,665,917
Required - Chapter 356	1,404,617	1,480,839	1,562,951	1,651,564	1,747,449	1,851,535	1,964,899	2,088,850	2,224,942	2,375,015
Sufficiency / (Deficiency)	(181,143)	(215,688)	(254,367)	(297,772)	(346,614)	(401,743)	(464,230)	(535,246)	(616,293)	(709,098)
Funding Ratios										
Current Assets (MVA)	21,480,823	21,638,038	21,793,459	21,947,796	22,102,602	22,260,689	22,425,515	22,598,541	22,781,199	22,973,219
Actuarial Accrued Liability (AAL)	33,636,209	34,416,455	35,226,759	36,069,273	36,947,650	37,867,154	38,833,960	39,852,000	40,925,968	42,058,208
Unfunded AAL	12,155,386	12,778,417	13,433,300	14,121,477	14,845,048	15,606,465	16,408,445	17,253,459	18,144,769	19,084,989
Funding Ratio	64%	63%	62%	61%	60%	59%	58%	57%	56%	55%
Benefit Payments	2,507,165	2,560,623	2,615,003	2,669,560	2,723,241	2,775,689	2,829,075	2,883,661	2,941,240	3,001,119

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

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General Employees Retirement Plan
Scenario: 6.5% for Four Years, 7.0% thereafter WITH CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Contributions (% of Payroll)										
Statutory - Chapter 353	13.5%	13.8%	14.0%	14.0%	14.5%	15.0%	15.5%	16.5%	17.0%	18.0%
Required - Chapter 356	13.7%	14.1%	14.7%	15.4%	16.2%	16.9%	17.6%	18.4%	19.2%	20.1%
Sufficiency / (Deficiency)	(0.2)%	(0.4)%	(0.7)%	(1.4)%	(1.7)%	(1.9)%	(2.1)%	(1.9)%	(2.2)%	(2.1)%
Contributions										
Statutory - Chapter 353	709,707	743,993	772,207	785,954	829,437	875,701	924,466	1,006,932	1,063,665	1,156,288
Required - Chapter 356	717,569	764,732	812,046	864,818	927,435	985,586	1,050,140	1,122,665	1,201,108	1,290,520
Sufficiency / (Deficiency)	(7,862)	(20,739)	(39,839)	(78,864)	(97,998)	(109,885)	(125,674)	(115,733)	(137,443)	(134,232)
Funding Ratios										
Current Assets (MVA)	15,084,608	15,622,075	16,154,461	16,663,241	17,132,175	17,674,875	18,217,282	18,762,480	19,349,046	19,956,635
Actuarial Accrued Liability (AAL)	19,379,769	20,181,530	20,977,267	21,756,549	22,518,471	23,263,504	23,990,542	24,699,658	25,393,954	26,076,446
Unfunded AAL	4,295,161	4,559,455	4,822,806	5,093,308	5,386,296	5,588,629	5,773,260	5,937,178	6,044,908	6,119,811
Funding Ratio	78%	77%	77%	77%	76%	76%	76%	76%	76%	77%
Benefit Payments										
	1,128,767	1,201,557	1,285,949	1,370,132	1,452,919	1,535,946	1,618,458	1,697,567	1,773,365	1,845,870

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

In approximately the year 2031, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. In approximately the year 2034, the plan's funded ratio would be over 90% for two consecutive years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.

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General Employees Retirement Plan
Scenario: 6.5% for Four Years, 7.0% thereafter WITH CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Contributions (% of Payroll)										
Statutory - Chapter 353	19.0%	20.0%	21.0%	22.0%	23.0%	24.0%	25.5%	27.0%	28.5%	28.5%
Required - Chapter 356	21.0%	22.1%	23.2%	24.6%	26.4%	29.0%	33.6%	46.1%	8.3%	7.3%
Sufficiency / (Deficiency)	(2.0)%	(2.1)%	(2.2)%	(2.6)%	(3.4)%	(5.0)%	(8.1)%	(19.1)%	20.2%	21.2%
Contributions										
Statutory - Chapter 353	1,254,546	1,359,093	1,470,147	1,588,060	1,713,116	1,845,436	2,025,225	2,215,640	2,417,053	2,498,364
Required - Chapter 356	1,389,061	1,499,394	1,625,671	1,775,590	1,964,412	2,227,617	2,671,687	3,785,872	707,606	641,886
Sufficiency / (Deficiency)	(134,515)	(140,301)	(155,524)	(187,530)	(251,296)	(382,181)	(646,462)	(1,570,232)	1,709,447	1,856,478
Funding Ratios										
Current Assets (MVA)	20,627,249	21,372,497	22,207,340	23,147,700	24,211,407	25,414,758	26,777,890	28,363,024	30,198,421	32,314,027
Actuarial Accrued Liability (AAL)	26,749,999	27,415,711	28,076,820	28,737,174	29,401,350	30,070,983	30,750,091	31,442,628	32,152,519	32,882,746
Unfunded AAL	6,122,750	6,043,214	5,869,480	5,589,474	5,189,943	4,656,225	3,972,201	3,079,604	1,954,098	568,719
Funding Ratio	77%	78%	79%	81%	82%	85%	87%	90%	94%	98%
Benefit Payments	1,917,034	1,985,052	2,050,231	2,112,154	2,173,793	2,232,663	2,289,669	2,344,990	2,399,280	2,453,483

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

In approximately the year 2031, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. In approximately the year 2034, the plan's funded ratio would be over 90% for two consecutive years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.

This exhibit should only be viewed in conjunction with GRS' January 31, 2014 letter to PERA.

General Employees Retirement Plan
Scenario: 6.5% for Four Years, 7.0% thereafter WITH CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2033	2034
Contributions (% of Payroll)		
Statutory - Chapter 353	28.0%	28.0%
Required - Chapter 356	6.3%	5.2%
Sufficiency / (Deficiency)	21.8%	22.8%
Contributions		
Statutory - Chapter 353	2,537,576	2,624,017
Required - Chapter 356	566,358	484,937
Sufficiency / (Deficiency)	1,971,218	2,139,080
Funding Ratios		
Current Assets (MVA)	34,605,222	37,041,240
Actuarial Accrued Liability (AAL)	33,636,209	34,416,455
Unfunded AAL	(969,013)	(2,624,785)
Funding Ratio	103%	108%
Benefit Payments	2,507,165	2,560,623

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

In approximately the year 2031, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. In approximately the year 2034, the plan's funded ratio would be over 90% for two consecutive years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.

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General Employees Retirement Plan
Scenario: 8.0% for Four Years, 8.5% thereafter WITHOUT CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Contributions (% of Payroll)										
Statutory - Chapter 353	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%
Required - Chapter 356	13.7%	13.8%	14.0%	14.2%	14.5%	14.7%	14.8%	14.9%	15.1%	15.2%
Sufficiency / (Deficiency)	(0.2)%	(0.3)%	(0.5)%	(0.7)%	(1.0)%	(1.2)%	(1.3)%	(1.4)%	(1.6)%	(1.7)%
Contributions										
Statutory - Chapter 353	709,707	730,466	744,629	757,884	772,235	788,131	805,180	823,854	844,675	867,216
Required - Chapter 356	717,569	745,843	771,524	799,383	831,498	855,753	882,021	910,810	942,609	977,503
Sufficiency / (Deficiency)	(7,862)	(15,377)	(26,895)	(41,499)	(59,263)	(67,622)	(76,841)	(86,956)	(97,934)	(110,287)
Funding Ratios										
Current Assets (MVA)	15,084,608	15,845,126	16,612,110	17,367,206	18,108,751	18,927,051	19,744,689	20,563,331	21,388,280	22,225,731
Actuarial Accrued Liability (AAL)	19,379,769	20,181,530	20,977,267	21,756,549	22,518,471	23,263,504	23,990,542	24,699,658	25,393,954	26,076,446
Unfunded AAL	4,295,161	4,336,404	4,365,157	4,389,343	4,409,720	4,336,453	4,245,853	4,136,327	4,005,674	3,850,715
Funding Ratio	78%	79%	79%	80%	80%	81%	82%	83%	84%	85%
Benefit Payments										
	1,128,767	1,201,557	1,285,949	1,370,132	1,452,919	1,535,946	1,618,458	1,697,567	1,773,365	1,845,870

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

In approximately the year 2028, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. In approximately the year 2035, the plan's funded ratio would be over 90% for two consecutive years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.

This exhibit should only be viewed in conjunction with GRS' January 31, 2014 letter to PERA.

General Employees Retirement Plan
Scenario: 8.0% for Four Years, 8.5% thereafter WITHOUT CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Contributions (% of Payroll)										
Statutory - Chapter 353	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%
Required - Chapter 356	15.4%	15.6%	15.8%	16.2%	16.6%	17.4%	18.9%	23.4%	7.5%	7.0%
Sufficiency / (Deficiency)	(1.9)%	(2.1)%	(2.3)%	(2.7)%	(3.1)%	(3.9)%	(5.4)%	(9.9)%	6.0%	6.5%
Contributions										
Statutory - Chapter 353	891,388	917,388	945,095	974,492	1,005,525	1,038,058	1,072,178	1,107,820	1,144,920	1,183,436
Required - Chapter 356	1,016,017	1,059,118	1,108,199	1,166,037	1,238,119	1,337,186	1,501,569	1,922,967	633,081	614,645
Sufficiency / (Deficiency)	(124,629)	(141,730)	(163,104)	(191,545)	(232,594)	(299,128)	(429,391)	(815,147)	511,839	568,791
Funding Ratios										
Current Assets (MVA)	23,081,947	23,961,598	24,871,833	25,819,968	26,814,354	27,860,901	28,968,470	30,145,824	31,402,215	32,746,934
Actuarial Accrued Liability (AAL)	26,749,999	27,415,711	28,076,820	28,737,174	29,401,350	30,070,983	30,750,091	31,442,628	32,152,519	32,882,746
Unfunded AAL	3,668,052	3,454,113	3,204,987	2,917,206	2,586,996	2,210,082	1,781,621	1,296,804	750,304	135,812
Funding Ratio	86%	87%	89%	90%	91%	93%	94%	96%	98%	100%
Benefit Payments	1,917,034	1,985,052	2,050,231	2,112,154	2,173,793	2,232,663	2,289,669	2,344,990	2,399,280	2,453,483

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

In approximately the year 2028, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. In approximately the year 2035, the plan's funded ratio would be over 90% for two consecutive years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.

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General Employees Retirement Plan
Scenario: 8.0% for Four Years, 8.5% thereafter WITHOUT CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2033	2034	2035
Contributions (% of Payroll)			
Statutory - Chapter 353	13.5%	13.5%	13.5%
Required - Chapter 356	6.5%	6.0%	5.5%
Sufficiency / (Deficiency)	7.0%	7.5%	8.0%
Contributions			
Statutory - Chapter 353	1,223,474	1,265,151	1,308,584
Required - Chapter 356	592,123	565,562	534,405
Sufficiency / (Deficiency)	631,351	699,589	774,179
Funding Ratios			
Current Assets (MVA)	34,189,035	35,738,904	37,407,619
Actuarial Accrued Liability (AAL)	33,636,209	34,416,455	35,226,759
Unfunded AAL	(552,826)	(1,322,449)	(2,180,860)
Funding Ratio	102%	104%	106%
Benefit Payments	2,507,165	2,560,623	2,615,003

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

In approximately the year 2028, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. In approximately the year 2035, the plan's funded ratio would be over 90% for two consecutive years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.

This exhibit should only be viewed in conjunction with GRS' January 31, 2014 letter to PERA.

General Employees Retirement Plan
Scenario: 8.0% for Four Years, 8.5% thereafter WITH CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Contributions (% of Payroll)										
Statutory - Chapter 353	13.5%	13.8%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.5%	14.5%
Required - Chapter 356	13.7%	13.8%	14.0%	14.2%	14.4%	14.5%	14.5%	14.6%	14.6%	14.5%
Sufficiency / (Deficiency)	(0.2)%	(0.0)%	0.0%	(0.2)%	(0.4)%	(0.5)%	(0.5)%	(0.5)%	(0.1)%	0.0%
Contributions										
Statutory - Chapter 353	709,707	743,993	772,207	785,954	800,836	817,321	835,001	854,367	907,243	931,454
Required - Chapter 356	717,569	745,843	770,278	795,304	823,975	844,046	865,188	887,632	911,479	931,749
Sufficiency / (Deficiency)	(7,862)	(1,850)	1,929	(9,350)	(23,139)	(26,725)	(30,187)	(33,265)	(4,236)	(295)
Funding Ratios										
Current Assets (MVA)	15,084,608	15,845,126	16,626,178	17,411,081	18,185,330	19,039,955	19,897,621	20,760,351	21,633,857	22,557,409
Actuarial Accrued Liability (AAL)	19,379,769	20,181,530	20,977,267	21,756,549	22,518,471	23,263,504	23,990,542	24,699,658	25,393,954	26,076,446
Unfunded AAL	4,295,161	4,336,404	4,351,089	4,345,468	4,333,141	4,223,549	4,092,921	3,939,307	3,760,097	3,519,037
Funding Ratio	78%	79%	79%	80%	81%	82%	83%	84%	85%	87%
Benefit Payments										
	1,128,767	1,201,557	1,285,949	1,370,132	1,452,919	1,535,946	1,618,458	1,697,567	1,773,365	1,845,870

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

In approximately the year 2026, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. In approximately the year 2032, the plan's funded ratio would be over 90% for two consecutive years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.

This exhibit should only be viewed in conjunction with GRS' January 31, 2014 letter to PERA.

General Employees Retirement Plan
Scenario: 8.0% for Four Years, 8.5% thereafter WITH CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Contributions (% of Payroll)										
Statutory - Chapter 353	14.5%	14.5%	14.5%	14.5%	14.5%	14.5%	14.0%	14.0%	13.5%	13.5%
Required - Chapter 356	14.4%	14.3%	14.0%	13.7%	13.2%	12.3%	10.5%	6.9%	6.3%	5.8%
Sufficiency / (Deficiency)	0.1%	0.3%	0.5%	0.8%	1.3%	2.2%	3.5%	7.2%	7.2%	7.7%
Contributions										
Statutory - Chapter 353	957,417	985,342	1,015,102	1,046,676	1,080,008	1,114,951	1,111,888	1,148,850	1,144,920	1,183,436
Required - Chapter 356	951,150	968,659	982,348	989,011	982,168	946,630	836,929	562,036	536,970	510,226
Sufficiency / (Deficiency)	6,267	16,683	32,754	57,665	97,840	168,321	274,959	586,814	607,950	673,210
Funding Ratios										
Current Assets (MVA)	23,508,786	24,493,553	25,519,847	26,596,046	27,731,651	28,933,817	30,212,745	31,537,261	32,954,698	34,431,378
Actuarial Accrued Liability (AAL)	26,749,999	27,415,711	28,076,820	28,737,174	29,401,350	30,070,983	30,750,091	31,442,628	32,152,519	32,882,746
Unfunded AAL	3,241,213	2,922,158	2,556,973	2,141,128	1,669,699	1,137,166	537,346	(94,633)	(802,179)	(1,548,632)
Funding Ratio	88%	89%	91%	93%	94%	96%	98%	100%	102%	105%
Benefit Payments	1,917,034	1,985,052	2,050,231	2,112,154	2,173,793	2,232,663	2,289,669	2,344,990	2,399,280	2,453,483

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

In approximately the year 2026, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. In approximately the year 2032, the plan's funded ratio would be over 90% for two consecutive years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.

This exhibit should only be viewed in conjunction with GRS' January 31, 2014 letter to PERA.

General Employees Retirement Plan
Scenario: 9.5% for Four Years, 10.0% thereafter WITHOUT CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Contributions (% of Payroll)										
Statutory - Chapter 353	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%
Required - Chapter 356	13.7%	13.4%	13.2%	13.0%	12.7%	12.0%	11.3%	10.3%	9.2%	7.7%
Sufficiency / (Deficiency)	(0.2)%	0.1%	0.3%	0.5%	0.9%	1.5%	2.2%	3.2%	4.4%	5.9%
Contributions										
Statutory - Chapter 353	709,707	730,466	744,629	757,884	772,235	788,131	805,180	823,854	844,675	867,216
Required - Chapter 356	717,569	726,954	729,172	727,922	723,665	702,933	672,949	630,893	572,569	491,259
Sufficiency / (Deficiency)	(7,862)	3,512	15,457	29,962	48,570	85,198	132,231	192,961	272,106	375,957
Funding Ratios										
Current Assets (MVA)	15,084,608	16,068,177	17,090,417	18,135,995	19,206,412	20,400,923	21,644,162	22,942,737	24,307,437	25,750,573
Actuarial Accrued Liability (AAL)	19,379,769	20,181,530	20,977,267	21,756,549	22,518,471	23,263,504	23,990,542	24,699,658	25,393,954	26,076,446
Unfunded AAL	4,295,161	4,113,353	3,886,850	3,620,554	3,312,059	2,862,581	2,346,380	1,756,921	1,086,517	325,873
Funding Ratio	78%	80%	81%	83%	85%	88%	90%	93%	96%	99%
Benefit Payments	1,128,767	1,201,557	1,285,949	1,370,132	1,452,919	1,535,946	1,618,458	1,697,567	1,773,365	1,845,870

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

In approximately the year 2020, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. In approximately the year 2024, the plan's funded ratio would be over 90% for two consecutive years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.

This exhibit should only be viewed in conjunction with GRS' January 31, 2014 letter to PERA.

General Employees Retirement Plan
Scenario: 9.5% for Four Years, 10.0% thereafter WITHOUT CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2023	2024
Contributions (% of Payroll)		
Statutory - Chapter 353	13.5%	13.5%
Required - Chapter 356	6.4%	5.6%
Sufficiency / (Deficiency)	7.1%	7.9%
Contributions		
Statutory - Chapter 353	891,388	917,388
Required - Chapter 356	425,444	378,394
Sufficiency / (Deficiency)	465,944	538,994
Funding Ratios		
Current Assets (MVA)	27,285,228	28,923,650
Actuarial Accrued Liability (AAL)	26,749,999	27,415,711
Unfunded AAL	(535,229)	(1,507,939)
Funding Ratio	102%	106%
Benefit Payments	1,917,034	1,985,052

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

In approximately the year 2020, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. In approximately the year 2024, the plan's funded ratio would be over 90% for two consecutive years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.

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General Employees Retirement Plan
Scenario: 9.5% for Four Years, 10.0% thereafter WITH CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Contributions (% of Payroll)										
Statutory - Chapter 353	13.5%	13.8%	14.0%	14.0%	14.0%	13.5%	13.5%	13.0%	13.0%	12.5%
Required - Chapter 356	13.7%	13.4%	13.2%	12.9%	12.5%	11.8%	11.1%	10.1%	8.9%	7.4%
Sufficiency / (Deficiency)	(0.2)%	0.3%	0.8%	1.1%	1.5%	1.7%	2.5%	2.9%	4.1%	5.1%
Contributions										
Statutory - Chapter 353	709,707	743,993	772,207	785,954	800,836	788,131	805,180	793,341	813,391	802,978
Required - Chapter 356	717,569	726,954	727,918	723,794	716,000	690,920	658,921	614,401	557,083	477,252
Sufficiency / (Deficiency)	(7,862)	17,039	44,289	62,160	84,836	97,211	146,259	178,940	256,308	325,726
Funding Ratios										
Current Assets (MVA)	15,084,608	16,068,177	17,104,587	18,180,400	19,284,438	20,516,783	21,771,608	23,082,928	24,429,608	25,852,113
Actuarial Accrued Liability (AAL)	19,379,769	20,181,530	20,977,267	21,756,549	22,518,471	23,263,504	23,990,542	24,699,658	25,393,954	26,076,446
Unfunded AAL	4,295,161	4,113,353	3,872,680	3,576,149	3,234,033	2,746,721	2,218,934	1,616,730	964,346	224,333
Funding Ratio	78%	80%	82%	84%	86%	88%	91%	93%	96%	99%
Benefit Payments	1,128,767	1,201,557	1,285,949	1,370,132	1,452,919	1,535,946	1,618,458	1,697,567	1,773,365	1,845,870

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

In approximately the year 2020, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. In approximately the year 2024, the plan's funded ratio would be over 90% for two consecutive years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.

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General Employees Retirement Plan
Scenario: 9.5% for Four Years, 10.0% thereafter WITH CONTRIBUTION STABILIZER
Fiscal year beginning July 1

\$ in Thousands	2023	2024
Contributions (% of Payroll)		
Statutory - Chapter 353	12.5%	12.0%
Required - Chapter 356	6.4%	5.6%
Sufficiency / (Deficiency)	6.1%	6.4%
Contributions		
Statutory - Chapter 353	825,359	815,456
Required - Chapter 356	422,705	379,673
Sufficiency / (Deficiency)	402,654	435,783
Funding Ratios		
Current Assets (MVA)	27,329,472	28,902,987
Actuarial Accrued Liability (AAL)	26,749,999	27,415,711
Unfunded AAL	(579,473)	(1,487,276)
Funding Ratio	102%	105%
Benefit Payments	1,917,034	1,985,052

Assumes annual postretirement increases of 1.0% for all years.

Numbers may not add due to rounding.

In approximately the year 2020, the plan's funded ratio would be over 90% for two consecutive years assuming a 1.0% COLA but under 90% assuming a 2.5% COLA. In approximately the year 2024, the plan's funded ratio would be over 90% for two consecutive years assuming a 2.5% COLA. Further guidance would be needed to determine when the COLA could increase from 1.0% to 2.5%.